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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,937	12/13/2002	Guillaume Calot	Q67858	8753

23373 7590 07/23/2004

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EXAMINER	
PEREZ, JULIO R	

ART UNIT	PAPER NUMBER
2681	

DATE MAILED: 07/23/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/019,937	CALOT ET AL.	
	Examiner	Art Unit	
	Julio R Perez	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 12.12
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10,17-24 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's submission of prior art Crosbie et al. (5537679).

Regarding claim 1[illegible], Crosbie et al. disclose a telecommunications method using non geostationary Earth satellites and in which the Earth is divided into areas inside which calls involving terminals in said area are relayed by a management station and each terminal and the management station communicate via a satellite (col. 3, lines 12-30; col. 4, lines 1-31; Figs. 1-2, the system comprises satellites, gateways, and control stations around areas on earth), another satellite taking over a call when the former satellite is no longer used, characterized in that, the terminals being stationary, commanding handover of calls from one satellite to another makes use of predetermined times during which at least two satellites are simultaneously visible from the area or from a portion of the area (col. 5, lines 15-43; col. 7, lines 61-67; col. 8, lines 1-24 and 36-64; Fig. 1-2, communication is transferred from one satellite to the other when the signal quality starts to fade; the satellite circle their orbits at predetermined times; further, two or more satellites are visible).

Regarding claim 2, Crosbie et al. disclose a method, characterized in that handover of calls involving the terminals from one satellite to another is commanded from the management station (col. 7, lines 61-67; col. 8, lines 1-3, the space control segment appropriately creates the routing for data or calls, hence corresponding to the support of handing off calls).

Regarding claim 3, Crosbie et al. disclose a method, characterized in that call handovers are commanded collectively for a plurality of terminals (col. 7, lines 43-67; col. 8, lines 1-3, the space control segment appropriately creates the routing for data or calls, hence corresponding to the support of handing off calls).

Regarding claim 4, Crosbie et al. disclose a method according to claim 3, characterized in that, in determining the handover time for each terminal, allowance is made for the power available and/or the availability of communication resources (col. 5, lines 15-65, the handoff fro the terminal is considered when the RF signals deteriorate, resulting in degradation on the power transmission, therefore requiring a satellite with better power strength).

Regarding claim 5, Crosbie et al. disclose a method, characterized in that handover times are commanded so that they can be distributed over all the terminals during the period of double visibility of the satellites (col. 5, lines 36-61, handoffs are performed during the view of the satellites).

Regarding claim 6, Crosbie et al. disclose a method, characterized in that the handover times are distributed so that the resources used by each satellite are

substantially the same (col. 4, lines 46-67; col. 5, lines 1-5; resources are provided efficiently to respective gateways or receivers).

Regarding claim 7, Crosbie et al. disclose a method, characterized in that the times of handover of calls from one satellite to another are predefined for each terminal (col. 8, lines 4-50, times to delivered packets are assigned according to the routing plan).

Regarding claim 8, Crosbie et al. disclose a method, characterized in that call quality is monitored for each terminal and a call is handed over to another satellite ahead of time if the call quality for a terminal falls below a predetermined threshold, for example because of masking (col. 5, lines 23-43, when RF signals start to deteriorate because one satellite is loosing visibility over the gateways, the other satellite is able to come in view to provide sufficient coverage).

Regarding claim 9, Crosbie et al. disclose a method, characterized in that a call is handed over to another satellite ahead of time if said other satellite provides a communication capacity greater than that of the former satellite (col. 5, lines 36-65, communication is established between the gateways and the arriving satellite as the former satellite looses control of the coverage).

Regarding claim 10, Crosbie et al. disclose a method, characterized in that the terrestrial areas are fixed (col. 4, lines 19-21, the gateways and control segments are located on geographical areas).

Regarding claim 17, Crosbie et al. disclose a terminal for a telecommunications system using non-geosynchronous Earth satellites and in which terrestrial areas are

defined (col. 3, lines 12-30; col. 4, lines 1-31; Figs. 1-2; the system comprises satellites, gateways, and control stations around areas on earth), each terminal in an area communicating with the telecommunications system via a management station in that area (col. 7, lines 43-67, the gateways communicate with the space control segment), calls between the management station and the terminal being relayed via a satellite, and means being provided in each terminal for commanding handover of calls from one satellite to another satellite (col. 5, lines 15-43; col. 7, lines 61-67; col. 8, lines 1-24 and 36-64; Fig. 1-2, communication is transferred from one satellite to the other when the signal quality starts to fade; the satellite circle their orbits at predetermined times; further, two or more satellites are visible), characterized in that, the terminal being stationary, handover means in said satellite include means for receiving handover command signals (col. 5, lines 1-43; col. 7, lines 61-67; col. 8, lines 1-24 and 36-64; Fig. 1-2, gateways are fixed nodes and communication is transferred from one satellite to the other when the signal quality starts to fade).

Regarding claim 18, Crosbie et al. disclose a terminal, characterized in that the means for commanding handover make use of predetermined times at which at least two satellites are simultaneously visible in the area or in a portion of the area (col. 5, lines 15-43; col. 7, lines 61-67; col. 8, lines 1-24 and 36-64; Fig. 1-2, communication is transferred from one satellite to the other when the signal quality starts to fade; the satellite circle their orbits at predetermined times; further, two or more satellites are visible).

Regarding claim 19, Crosbie et al. disclose a terminal, characterized in that it includes means for measuring the quality of the link to each satellite and means for bringing handover forward if the quality of the link to the satellite that is moving away falls below a predetermined threshold (col. 5, lines 23-43, when RF signals start to deteriorate because one satellite is loosing visibility over the gateways, the other satellite is able to come in view to provide sufficient coverage).

Regarding claim 20, Crosbie et al. disclose a terminal, characterized in that it includes two directional antennas, one intended to be pointed toward one satellite and the other toward another satellite (col. 5, lines 6-9, three antennas are provided on the gateways).

Regarding claim 21, Crosbie et al. disclose a terminal, characterized in that signals for commanding handover include signals for commanding pointing ahead of time of the antenna intended to be pointed toward the satellite due to take over the call col. 5, lines 54-61, another antenna o the gateway is available for a different satellite view as soon as the first satellite goes off view).

Regarding claim 22, Crosbie et al. disclose a management station for a telecommunications system in which terrestrial areas are defined, each terminal in an area communicating with the telecommunications system via a management station in that area (col. 3, lines 12-30; col. 4, lines 1-31; Figs. 1-2; the system comprises satellites, gateways, and control stations around areas on earth), calls between the management station and the terminals being relayed via a satellite (col. 3, lines 12-30; col. 4, lines 1-31; Figs. 1-2, gateways and control stations around areas on earth

communicate with each other via the satellites), and means being provided in each terminal for commanding handover of calls from a first satellite to a second satellite, which management station is characterized in that it includes means for commanding handover of calls involving stationary terminals in the area, or in a portion of the area, using predetermined times at which at least two satellites are visible simultaneously in that area or in a portion of that area (col. 5, lines 15-43; col. 7, lines 61-67; col. 8, lines 1-24 and 36-64; Fig. 1-2, communication is transferred from one satellite to the other when the signal quality starts to fade; the satellite circle their orbits at predetermined times; further, two or more satellites are visible).

Regarding claim 23, Crosbie et al. disclose a management station, characterized in that it includes means for determining individual handover times for each terminal as a function of the allocation of power and/or communication resources (col. 5, lines 15-65, the handoff fro the terminal is considered when the RF signals deteriorate, resulting in degradation on the power transmission, therefore requiring a satellite with better power strength).

Regarding claim 24, Crosbie et al. disclose a management station, characterized in that periods of handover from one satellite to another are commanded so that they can be distributed over all of the terminals during the period of double visibility (col. 5, lines 36-61, handoffs are performed during the view of the satellites).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 11-16, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crosbie et al. (5537679) in view of Hart et al. (6314269).

Regarding claim 11, Crosbie et al. teach the limitations in claim 1.

Crosbie et al. do not explicitly disclose a method, characterized in that the resources allocated to a terminal for a satellite include a carrier frequency and a plurality of codes, especially Hadamard sequences, and/or time slots.

However, the preceding limitation is well known in the art of telecommunications.

Hart et al. teach earth stations communicating with a plurality of mobile stations using frames, which are divided into time slots corresponding to different frequencies (col. 6, lines 12-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system as taught by Crosbie et al. with communication between the control segment and the gateways using multiplexed communication, TDMA, because it would provide the gateways and the control segments with diversity in the link between the gateways and the controllers by transmitting the same information through two or more satellites. Further, the

information may be sent in the same TDMA time slot via the two satellites or in different time slots; in that way, blockage may be reduced.

Regarding claim 12, Hart et al. teach a method, characterized in that a single system for allocating resources is provided in each terminal and/or the management station and said resources are duplicated during a handover period (col. 7, lines 21-31; col. 9, lines 50-67; col. 11, lines 21-24).

Regarding claim 13, Hart et al. teach a method, characterized in that, two cells, packets or other signals to be relayed simultaneously via two different satellites have different carrier frequencies and preferably the same codes (col. 6, lines 12-36).

Regarding claim 14, Hart et al. teach a method, characterized in that zero power is allocated to signals on the second path before handover and zero power is allocated to signals on the first path after handover (col. 9, lines 50-67; col. 10, lines 1-12).

Regarding claim 15, Hart et al. teach a method, characterized in that non zero powers are allocated to both sets of cells or packets during a transition period, for example equal to a cell or packet time slot (col. 6, lines 12-24; col. 7, lines 21-31; col. 8, lines 26-29; col. 9, lines 50-67).

Regarding claim 16, Hart et al. teach a method, characterized in that the powers allocated to the duplicated cells or packets are monitored (col. 5, lines 4-13; col. 6, lines 12-24; col. 7, lines 21-31; col. 8, lines 26-29; col. 9, lines 50-67).

Regarding claim 25, Crosbie et al. teach the limitations in claim 22.

Crosbie et al. do not explicitly disclose a management station, characterized in that it includes a system for allocating the terminals carrier frequencies divided into non

contiguous subsets, two carriers from the same subset being chosen to hand over a call from one satellite to another.

However, the preceding limitation is well known in the art of telecommunications.

Hart et al. teach earth stations communicating with a plurality of mobile stations using frames, which are divided into time slots corresponding to different frequencies (col. 6, lines 12-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system as taught by Crosbie et al. with communication between the control segment and the gateways using multiplexed communication, TDMA, because it would provide the gateways and the control segments with diversity in the link between the gateways and the controllers by transmitting the same information through two or more satellites. Further, the information may be sent in the same TDMA time slot via the two satellites or in different time slots; in that way, blockage may be reduced.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the art with respect to low or medium earth orbit satellites and handovers thereof.

US Pat. No. 20020061730 to Hart et al.	TDMA satellite mobile system
US Pat. No. 6122507 to Gerard et al.	Call handover in non-geostationary satellites
US Pat. No. 5867765 to Nilsson	Non-geostationary satellite mobile communication system

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R Perez whose telephone number is (703) 305-8637. The examiner can normally be reached on 7:00 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Erika Gary can be reached on (703) 308-0123. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
7/16/04

ERIKA GARY
PATENT EXAMINER